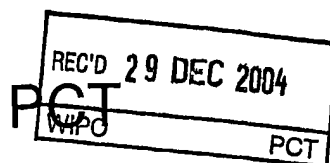


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

3/3

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCTUS2004/026830

International filing date (day/month/year)
17.08.2004

Priority date (day/month/year)
19.08.2003

International Patent Classification (IPC) or both national classification and IPC
A61C5/10, A61C5/12, A61K6/08

Applicant
3M INNOVATIVE PROPERTIES COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/026830

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/026830

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-20
Inventive step (IS)	Yes: Claims	
	No: Claims	1-20
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Method of medical treatment - claims 17-20.

Re Item V.

- 1 The following document is referred to in this communication:
D1 : WO 95/35071 A

2 NOVELTY

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-20 is not new in the sense of Article 33(2) PCT. Document D1 discloses dental crown liner compositions comprising mouldable thermoplastic free-radically polymerisable functional components. The properties of the thermoplastic moulding composition allow for resoftening and resultant reshaping of the composition at any stage before final cure (see D1, page 9, line 27 to page 10, line 31; page 15, line 15-26; claims).

3 INVENTIVE STEP

The problem to be solved can be regarded as to provide dental article forms that are thin-walled such that the article form can be removed after having hardened the dental resin such that only a small gap will be left between proximal teeth as well as the opposing tooth (or not removed at all); in a preformed desired shape that can be filled with hardenable dental materials; can be reformed into a second shape and following hardening of the dental material can provide a custom-shaped dental article therefore eliminating the necessity to use a dental impression and would eliminate the need for a significant number of sizes and shapes of article forms.

The solution is to providing a dental composition (curable or non-curable) and dental article form that is in the form of a self-supporting structure having a first shape that is malleable and can be formed into a second shape, which is capable of being filled with hardenable dental materials and removed after at least partial

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2004/026830

hardening the dental material to form a dental article.

The document D1 is regarded as being the closest prior art to the subject-matter of claims 1-20, and discloses dental crown liner compositions comprising mouldable thermoplastic free-radically polymerisable functional components. The properties of the thermoplastic moulding composition allow for resoftening and resultant reshaping of the composition at any stage before final cure (see D1, page 9, line 27 to page 10, line 31; page 15, line 15-26; claims). Therefore, D1 discloses the same solution to the same problem as outlined in the present application. Therefore, The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-20 does not involve an inventive step in the sense of Article 33(3) PCT.

INTERNATIONAL SEARCH REPORT

PCT/US2004/026830

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61C5/10 A61C5/12 A61K6/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61C A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95/35071 A (MINNESOTA MINING & MFG) 28 December 1995 (1995-12-28) page 9, line 27 - page 10, line 31 page 15, line 15 - line 26	1-20
A	US 2002/081546 A1 (BURNS CRAIG R ET AL) 27 June 2002 (2002-06-27) paragraph '0037! claims	1-20

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

20 December 2004

Date of mailing of the international search report

30/12/2004

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Authorized officer

Thornton, S

INTERNATIONAL SEARCH REPORT

PCT/US2004/026830

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: —
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 17-20 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US2004/026830

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9535071	A	28-12-1995	JP	10501997 T	24-02-1998
			WO	9535071 A1	28-12-1995
			US	5709548 A	20-01-1998
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US 2002081546	A1	27-06-2002	US	6318994 B1	20-11-2001
			US	2004202983 A1	14-10-2004
			AU	1107500 A	05-12-2000
			EP	1191898 A1	03-04-2002
			JP	2002543917 T	24-12-2002
			TW	476632 B	21-02-2002
			WO	0069356 A1	23-11-2000
			US	2004023183 A1	05-02-2004
			US	2004137400 A1	15-07-2004
			US	2002042038 A1	11-04-2002
US	2002064746 A1	30-05-2002			
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